

Appl. No. 09/825,585
Response dated July 6, 2004
Request for Continued Examination

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method for preparing high scrap recycle content flexible polyolefin compositions comprising:

creating a melt blend comprised of 15% to 50% by weight thermoplastic scrap material, up to 15% by weight poly(ethylene-co-vinyl acetate) and the remainder of the melt blend comprised of a blending composition;

wherein the melt blend is formed by feeding said components to a melt compounding extruder operating at sufficient temperature, residence time and screw configuration to produce a homogenous melt blend;

solidifying said melt blend;

wherein the blending composition is comprised of from 40% to 60% by weight polypropylene, at least 40% by weight impact modifier and up to 15% by weight plasticizer;

wherein the polypropylene is an impact polypropylene polymer with 6 to 7 percent by weight attached ethylene chains;

wherein the impact modifier is either an olefin copolymer or terpolymer of ethylene, propylene and a non-conjugated diene;

wherein the plasticizer is selected from the group of compositions consisting of diundecyl phthalate, tri-2-ethylhexyl trimellitate, mineral oil, butylbenzene sulfonamide, epoxidized soybean oil, octyl tallate, butyl tallate, octyl tallate and alkyl tallate;

wherein the thermoplastic scrap material comprises granulated blends comprised of between 12 and 35% by weight polyamide;

wherein the thermoplastic scrap material comprises up to 3% by weight polyester;

wherein the thermoplastic scrap material comprises up to 5% by weight polypropylene;

wherein the thermoplastic scrap material comprises up to 15% by weight poly(ethylene-co-vinyl acetate); and

wherein the thermoplastic scrap material comprises up to 75% by weight poly(ethylene-co-vinyl acetate) filled with inorganic compositions wherein said inorganic compositions are further comprised of BaSO₄ and CaCO₃ and;.

wherein the flexible polyolefin composition so produced comprises at least 16 percent by weight of the polypropylene.

2. (Currently amended) The method of claim 1 wherein the impact modifier comprises olefin copolymer is selected from the group consisting of ethylene-butene copolymer and ethylene-octene copolymer.

3. (Previously presented) The method of claim 1 wherein the plasticizer is selected from the group of plasticizers butylbenzene sulfonamide, epoxidized soybean oil, octyl tallate, butyl tallate, octyl tallate and alkyl tallate.

4. (Previously presented) The method of claim 1 comprised from 40% to 50% by weight thermoplastic scrap, from 8% to 12% by weight poly(ethylene-co-vinyl acetate) and from 38% to 52% by weight blending composition.

5. (Previously presented) The method of claim 1 wherein the flexible polyolefin composition is suitable for use in motor vehicle interiors.

6. (Previously presented) The method of claim 1 wherein the flexible polyolefin composition is suitable for use in automotive products requiring a Class A finish.
7. (Previously presented) The method of claim 1 wherein the flexible polyolefin composition has a flexural modulus from 15,000 to 38,000 psi.
8. (Previously presented) The method of claim 1 wherein the compounding melt extruder is a co-rotating twin screw extruder containing transport zones, at least one kneading zone, and at least three mixing zones.
9. (Previously presented) The method of claim 8 wherein the plasticizer is added to the composition to an extruder transport zone situated subsequent to at least one mixing and kneading zones but prior to at least one mixing zone.
10. (Currently amended) A method for preparing high scrap recycle content flexible polyolefin compositions comprising:
 - creating a melt blend comprised of 15% to 50% by weight thermoplastic scrap material, up to 15% by weight poly(ethylene-co-vinyl acetate) and the remainder of the melt blend comprised of a blending composition;
 - wherein the melt blend is formed by feeding said components to a melt compounding extruder operating at sufficient temperature, residence time and screw configuration to produce a homogenous melt blend;
 - solidifying said melt blend;
 - wherein the blending composition is comprised of from 40% to 60% by weight polypropylene, at least 40% by weight impact modifier and up to 15% by weight plasticizer;
 - wherein the polypropylene is a random polypropylene polymer with 2 to 3 percent by weight attached ethylene chains;

wherein the impact modifier is either an olefin copolymer or terpolymer of ethylene, propylene and a non-conjugated diene;

wherein the plasticizer is selected from the group of compositions consisting of diundecyl phthalate, tri-2-ethylhexyl trimellitate, mineral oil, butylbenzene sulfonamide, epoxidized soybean oil, octyl tallate, butyl tallate, octyl tallate and alkyl tallate;

wherein the thermoplastic scrap material comprises granulated blends comprised of between 12 and 35% by weight polyamide;

wherein the thermoplastic scrap material comprises up to 3% by weight polyester;

wherein the thermoplastic scrap material comprises up to 5% by weight polypropylene;

wherein the thermoplastic scrap material comprises up to 15% by weight poly(ethylene-co-vinyl acetate);

wherein the thermoplastic scrap material comprises up to 75% by weight poly(ethylene-co-vinyl acetate) filled with inorganic compositions wherein said inorganic compositions are further comprised of BaSO₄ and CaCO₃ and;.

wherein the flexible polyolefin composition so produced comprises at least 16 percent by weight of the polypropylene.

11. (Currently amended) The method of claim 10 wherein the impact modifier comprises olefin copolymer is selected from the group consisting of ethylene-butene copolymer and ethylene-octene copolymer.

12. (Previously presented) The method of claim 10 wherein the plasticizer is selected from the group of plasticizers butylbenzene sulfonamide, epoxidized

soybean oil, octyl tallate, butyl tallate, octyl tallate and alkyl tallate.

13. (Previously presented) The method of claim 10 comprised from 40% to 50% by weight thermoplastic scrap, from 8% to 12% by weight poly(ethylene-co-vinyl acetate) and from 38% to 52% by weight blending composition.

14. (Previously presented) The method of claim 10 wherein the flexible polyolefin composition is suitable for use in motor vehicle interiors.

15. (Previously presented) The method of claim 10 wherein the flexible polyolefin composition is suitable for use in automotive products requiring a Class A finish.

16. (Previously presented) The method of claim 10 wherein the flexible polyolefin composition has a flexural modulus from 15,000 to 38,000 psi.

17. (Previously presented) The method of claim 10 wherein the compounding melt extruder is a co-rotating twin screw extruder containing transport zones, at least one kneading zone, and at least three mixing zones.

18. (Currently amended) The method of claim 17 wherein the plasticizer is added to the composition to an extruder transport zone situated subsequent to at least one mixing and kneading zones but prior to at least one mixing zone.

19. (Currently amended) A method for preparing flexible polyolefin compositions comprising:

creating a melt blend comprised of a blending composition;

wherein the melt blend is formed by feeding said components to a melt compounding extruder operating at sufficient temperature, residence time and screw configuration to produce a homogenous melt blend;

solidifying said melt blend;

wherein the blending composition is comprised of from 40% to 60% by weight polypropylene, at least 40% by weight impact modifier and from 10% to 20% by weight plasticizer;

wherein the polypropylene is either a random polypropylene polymer with from 2% to 3% by weight attached ethylene chains or an impact polypropylene with from 6% to 7% by weight attached ethylene chains;

wherein the impact modifier is either an olefin copolymer or terpolymer of ethylene, propylene and a non-conjugated diene;

wherein the plasticizer is selected from the group of compositions consisting of diundecyl phthalate, tri-2-ethylhexyl trimellitate, mineral oil, butylbenzene sulfonamide, epoxidized soybean oil, octyl tallate, butyl tallate, octyl tallate and alkyl tallate.

20. (Currently amended) The method of claim 19 wherein the impact modifier comprises olefin copolymer is selected from the group consisting of ethylene-butene copolymer and ethylene-octene copolymer.

21. (Previously presented) The method of claim 19 wherein the plasticizer is selected from the group of plasticizers butylbenzene sulfonamide, epoxidized soybean oil, octyl tallate, butyl tallate, octyl tallate and alkyl tallate.

22. (Previously presented) The method of claim 19 wherein the flexible polyolefin composition is suitable for use in motor vehicle interiors.

23. (Previously presented) The method of claim 19 wherein the flexible polyolefin composition is suitable for use in automotive products requiring a Class A finish.

24. (Previously presented) The method of claim 19 wherein the flexible polyolefin composition has a flexural modulus from 15,000 to 38,000 psi.

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25. (Previously presented) The method of claim 19 wherein the compounding melt extruder is a co-rotating twin screw extruder containing transport zones, at least one kneading zone, and at least three mixing zones.

26. (Previously presented) The method of claim 25 wherein the plasticizer is added to the composition to an extruder transport zone situated subsequent to at least one mixing and kneading zones but prior to at least one mixing zone.